1. A method for treating AMD, comprising:

sliding a catheter around the globe of the eye of a living patient, the catheter containing a switchable x-ray source capable of directional emission in a distal end of the catheter, to a position behind the macular region of the retina, and

switching on the x-ray source to emit directed radiation through the sclera into the choroidal layer.

2. The method of claim 1, further including properly locating the catheter behind the macular region by activating light sources on the catheter, and viewing the light sources using an optical instrument from the front of the eye, the light sources being visible through the sclera, choroid and retina.

3. The method of claim 2, wherein the light sources at the catheter comprise optical fibers receiving light from a source of illumination at a console to which the fibers are connected.

4. The method of claim 3, wherein the optical fibers have angularly cleaved ends as said light sources at the catheter.

5. The method of claim 3, wherein the optical fibers are polished and wherein the light sources at the catheter include

microprism reflectors directing light from the optical fibers toward the front of the eye.

6. The method of claim 1, further including properly locating the distal end of the catheter behind the macular region by directing a preselected pattern of light toward the retina from the front of the eye, and detecting the pattern of light using detectors located near the distal end of the catheter, in such a way as to indicate a direction of movement for correction of the catheter's position.

7. The method of claim 6, wherein the pattern of light comprises repeated expanding rings of light.

8. The method of claim 6, wherein the pattern of light comprises a grid of light lines illuminated sequentially.

9. The method of claim 6, wherein the pattern of light comprises a color gradation pattern, with color indicating location.

10. The method of claim 6, wherein the pattern of light comprises a moving pattern of light and the method includes temporally sensing the position of the catheter by reference to

the moving pattern.

11. The method of claim 1, wherein the switchable x-ray source comprises a miniature x-ray tube emitting isotropic radiation, with shielding on the tube such that the emission pattern of the tube, when the catheter is substantially against the exterior of the sclera, is directed at the choroidal membrane immediately behind the macular region and essentially not outside the macular region.

12. The method of claim 1, wherein the switchable x-ray source comprises a miniature x-ray tube emitting a side-looking directional radiation.

13. The method of claim 12, wherein the x-ray tube has an angled anode and target, with the tube being shielded such that the emission pattern of the tube, when the catheter is substantially against the exterior of the sclera, is directed at the choroidal membrane immediately behind the macular region and essentially not outside the macular region.

14. The method of claim 12, wherein the x-ray tube is shielded to provide a desired, limited directional radiation toward the choroid immediately behind the macula.

15. The method of claim 12, further including filtering the radiation emitted from the x-ray source to harden the x-ray beam, using one or more filters coated onto the tube, thus reducing unwanted dose in the sclera.

16. The method of claim 1, further including filtering the radiation emitted from the x-ray source to harden the x-ray beam, using one or more filters coated onto the tube, thus reducing unwanted dose in the sclera.

17. The method of claim 16, wherein the distal end of the probe includes an adjustable standoff device for standing the x-ray source off from the sclera after insertion of the catheter, the x-ray source comprising a miniature x-ray tube, and including the step of selecting and balancing parameters of standoff distance of the source from the sclera and voltage applied to the miniature x-ray tube, to optimize the parameters to achieve a prescription radiation dose in the choroid and to limit dose in the sclera and minimize dose in the retina.

18. The method of claim 1, wherein the x-ray source emits energy in the range of about 10-30 KeV.

19. The method of claim 18, wherein the x-ray source emits

radiation with an energy of about 15 KeV.

20. The method of claim 1, including properly locating the distal end of the catheter by a protrusion in the surface of the catheter, near its distal end, and the method including viewing the retina from the front of the eye as the catheter is inserted, thus observing a protrusion in the retina caused by the protrusion on the catheter, until the catheter is properly positioned.

21. The method of claim 20, wherein the protrusion in the surface of the catheter comprises an inflatable balloon, and the method including inflating the balloon of the protrusion to a selected extent after properly locating the distal end of the catheter to stand the distal end off from the sclera to a desired extent to improve the surface to depth dose ratio.

22. The method of claim 21, further including at least one additional inflatable balloon on the catheter, the additional inflatable balloon, along with said protrusion, serving to help immobilize the catheter after proper location of the distal end of the catheter.

23. The method of claim 21, wherein the x-ray source

comprises a miniature x-ray tube, and including the step of selecting the extent of standoff of the x-ray source from the sclera, and selecting a voltage for the x-ray source and optimizing the standoff and the voltage to achieve a prescription dose to target tissue of the choroid and minimize dose to non-target ocular tissue.

24. The method of claim 23, further including filtering the radiation emitted from the x-ray source to harden the x-ray beam, using one or more filters coated onto the tube, thus reducing unwanted dose in the sclera.

25. The method of claim 1, wherein the catheter includes a guide having a non-round elongated internal cavity, the x-ray source having a complementary shape fitted to the non-round cavity so as to orient the x-ray tube rotationally within the guide.

26. The method of claim 25, wherein the non-round cross sectional shape in the guide comprises generally a keyhole shape.

27. The method of claim 1, further including, prior to switching on the x-ray source, administering to the patient vascularly a radiosensitizing drug, in an effective amount to

sensitize the cells in the choroidal layer such that a lower dose or x-ray radiation can be delivered.

28. The method of claim 1, in combination with photodynamic therapy administered to the eye, including administering a photo-activated substance vascularly to the patient and then photo-activating the substance by directing light through the front of the eye to thereby disrupt CNV vasculature in the choroid layer at the macula, the x-ray radiation serving to disable rapidly dividing cells of the CNV vasculature and to assist in the effects of the photodynamic therapy by preventing a repair response which naturally follows photodynamic treatment.

29. The method of claim 1, further including properly locating the catheter behind the macular region by exciting a fluorescent substance on the catheter with x-ray radiation from the source, and viewing the fluorescent substance using an optical instrument from the front of the eye.

30. The method of claim 29, wherein the x-ray source is a miniature x-ray tube, and the fluorescent substance being on the tube.

31. A method for inserting and correctly locating a

therapeutic probe by insertion peripherally around the globe of the eye, for therapeutic treatment of the eye, comprising locating the catheter behind the macular region by activating light sources on the catheter, and viewing the light sources using an optical instrument from the front of the eye, the light sources being visible through the sclera, choroid and retina.

32. The method of claim 31, wherein the light sources at the catheter comprise optical fibers receiving light from a source of illumination at a console at two of which the fibers are connected.

33. The method of claim 32, wherein the optical fibers have angularly cleared ends as said light sources of the catheter.

34. A method for inserting and correctly locating a therapeutic probe by insertion preferably around the globe of the eye, for therapeutic treatment of the eye, comprising locating the distal end of the catheter behind the macular region by directing a preselected pattern of light toward the retina from the front of the eye, and detecting the pattern of light using detectors located near the distal end of the catheter, in such a way as to indicate a direction of movement for correction of the catheter's position.

35. The method of claim 34, wherein the pattern of light comprises repeated expanding rings of light.

36. The method of claim 34, wherein the pattern of light comprises a grid of light lines illuminated sequentially.

37. The method of claim 34, wherein the pattern of light comprises a color gradation pattern, with color indicating location.

38. The method of claim 34, wherein the pattern of light comprises a moving pattern of light and the method includes temporally sensing the position of the catheter by reference to the moving pattern.

39. A method for inserting and correctly locating a therapeutic probe by insertion peripherally around the globe of the eye, for therapeutic treatment of the eye, comprising locating the distal end of the catheter by a protrusion in the surface of the catheter, near its distal end, and the method including viewing the retina from the front of the eye as the catheter is inserted, thus observing a protrusion in the retina caused by the protrusion on the catheter, until the catheter is properly positioned.

40. A method for treating AMD, comprising:

sliding a catheter around the globe of the eye of a living patient, the catheter containing a switchable x-ray source capable of directional emission in a distal end of the catheter, to a position behind the sclera and not directly behind the macular region of the retina, and switching on the x-ray source to emit directed radiation through the sclera into the choroidal layer, in a direction essentially tangential or chordal relative to the globe of the eye essentially not passing radiation through the retina.

41. The method of claim 40, further including properly locating the catheter behind the sclera in proper position aimed at the choroidal layer by activating light sources on the catheter and viewing the light sources using an optical instrument from the front of the eye, the light sources being visible through the sclera, choroid and retina.

42. The method of claim 41, wherein the light sources at the catheter comprise optical fibers receiving light from a source of illumination at a console to which the fibers are connected.

43. The method of claim 40, wherein the x-ray tube is

shielded to provide a desired, limited directional radiation in said tangential or chordal direction relative to the globe of the eye.

44. The method of claim 43, further including filtering the radiation emitted from the x-ray source to harden the x-ray beam, using one or more filters coated onto the tube, thus reducing unwanted dose in the sclera.

45. The method of claim 40, including properly locating the distal end of the catheter by a protrusion in the surface of the catheter, near its distal end, and the method including viewing the retina from the front of the eye as the catheter is inserted, thus observing a protrusion in the retina caused by the protrusion on the catheter, until the catheter is properly positioned.

46. A method for treating an ocular tumor, comprising:

sliding a catheter around the globe of the eye of a living patient, the catheter containing a switchable x-ray source capable of directional emission in a distal end of the catheter, to a position adjacent to the tumor, and

switching on the x-ray source to emit directed radiation to deliver a prescription dose to the tumor.